Public Private Partnerships for Community Electricity

"PACE"

Ethiopia, Nepal, Sri Lanka, Uganda

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Overview of the Electricity Sector in Relation to Public Private Partnerships in Uganda

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1 Introduction

1.1 PACE Project Background

Access to affordable, safe electricity is a fundamental step in the transition from a poor community to one showing sustainable economic growth and social development. Energy for productive uses, particularly in the agro-processing sector, is a key driver in improving local economic and social opportunities. Grid extension to rural areas in many countries is happening very slowly and even where the grid is present, in urban or peri-urban areas, many businesses, communal services and households are still unable to access power due to high connection charges or discrimination (e.g., licensing, traditional housing type, tenant status, etc.).

A growing number of communities in many developing countries do not have access to electricity, as traditional monopoly utilities in most of these countries cannot keep up with increasing population growth, and increasing demand for electricity services for businesses, institutions and households. Increasing decentralisation of government to local regions in many countries provides opportunities for these bodies to become involved in supplying electricity services.

The Department for International Development of the United Kingdom (DFID) is funding a four-country program to review and pilot alternative models for Public Private Partnerships for the delivery of electricity services to communities in developing countries. This report provides an overview of the country situation in Uganda.

1.2 Local Government Structure in Uganda

The decentralization policy in Uganda (Local Governments Statue 1993) seeks to transfer political, administrative, financial and planning authority from the centre to local government councils.

The structure of the Local Government in Uganda is described below.

Local Council I (Village Council) is the grass root council that incorporates all households in the village. An LCI should comprise at least some 500 persons. The LC I elects an executive committee that comprises 10 executives in charge of the Chairman & Secretary of the committee, Production & Environment, Women & Gender, Education, Defense & Security, Finance etc. These then form members to LCII council. Which itself elects a committee to represent it at the LCIII level. This pattern continues till the LC V which is the supreme policy body in the district.

These positions are mirrored at all levels LC I to LC V

Local Council II (Parish Council)

Local Council III (Sub-County)

Local Council IV (Municipal)

Local Council V (District Council) The Chairman of LCV is the political head of the district. While a District Executive Secretary (DES) is the executive head of the district. The DES is directly responsible for the supervision and control of government seconded staff to the districts.

Under the decentralization program, following the Local Government Statute 1993, districts form their own development plans. The District Development Committee (DDC) is the main forum for the coordination and development in the district.

Each municipality has its own DDC. In essence district and urban council becomes an independent governing and planning unit. District and urban councils handle all matters relating to primary education, rural trade , technical schools, medical and health services, water supply, road maintenance and construction, field services and local prisons and police.

Donors can deal with local councils directly but only with the oversight and following the general policy direction of the central government

According to the financial accounting regulations of the Local Council Act the local revenues raised are shared thus:-

District LC V receives 35% of all revenues collected
The rest of the revenue is reverted back to 100% and shared thus:-

LC IV 5%
LC III 65%
LC II 5%
LC I 25%

1.3 Energy Sector Overview

1.3.1 General

The Ugandan economy suffered a serious decline during the 1970's due to economic mismanagement. This mismanagement had a major impact on the energy sector. The '70's period was characterized by falling demand, inadequate maintenance and low investment distorted prices and an absence sector policy making and planning.

In the mid and late ‘80’s to the ‘90’s Uganda embraced major policy reforms that lead to significant economic growth. This growth has been maintained and consequently has had obvious implications on the total energy consumption.

About 90% of Uganda’s total energy consumption is provided by biomass i.e. firewood, charcoal and agricultural residues. The modern segment of the energy sector – electricity and petroleum is small. The country has had one of the lowest per capita consumption levels of modern energy in sub Saharan Africa. Only 4% of the population have had access to electricity and Uganda has had a high energy demand growth of 7% per annum.

The ‘70’s bore general institutional collapse which impacted on the energy sector in that there wasn’t any single institution that took lead in the championing of energy policies and investments. There was little recognition of sector issues and energy concerns to the extent that energy was taken to be synonymous with grid electricity. This meant that the various energy sub sectors advanced independently. At policy levels the decisions affecting the energy sector were determined by the level of foreign exchange allocated by the central bank and by the ministry of finance which determined the budgetary allocation to each sub sector.

In the early 1990’s a department for energy was established to handle all matters pertaining to the energy sub sector. Today, the mandate for the energy sector within the governments is held by the Ministry of Energy and Mineral Development (MEMD). The MEMD responsibilities range from setting polices and strategies for commercial energy and supervises and regulates the power and petroleum sectors.

With the passing of The Electricity Act, 1999 varied opportunities for public participation in the electricity sector have presented themselves. In line with this the Government is in the process of ending its monopoly over the electricity sector with the disbanding of the state-owned monopoly the Uganda Electricity Board.

With the mechanisms for and guidance in the development of the energy sector significant investments are now being made in the sector embracing all the energy forms i.e. biomass, electricity, solar PV, mini and micro grids.
This paper describes some of these main developments.

The table below provides some of the key geopolitical statistics in Uganda

Table 1: Statistics

Population	24.6 million
Physical Area	236,040 sq. km.
GDP Per Capita	US $ 300
Urban/Rural Population Mix	25% Urban /75% Rural
Percentage Electrification of Households	4%
Power Generation Installed Capacity	320 MW
Literacy Rate	65%
Mean Temperature Over Land	26-28 Degrees Celsius

1.3.2 Power Sector Restructuring and Privatisation

In 1997 the Government of Uganda formulated a comprehensive and detailed Strategic Plan for transforming the Uganda power sector into a financially viable electricity industry, in order to make its full contribution to the economic and social development of Uganda.

This plan was revised into a new Strategic Plan in June 1999.

The New Strategic Plan places particular emphasis on the role of competition in promoting efficiency within the power sector and on private sector participation as being a key driver to enhance the power sector's performance.

The key elements of the reform are:

- Increasing the scope of competition in the provision of new generating capacity and in the running of existing generation assets. New generating capacity to be competitively provided by the private sector through independent power projects (IPPs);

- A separate Transmission Company, which in the medium term will remain in public hands, to be responsible for network maintenance, system operation and dispatch, and bulk purchase and supply of electricity. New transmission capacity will as far as possible be developed, financed, constructed, operated and owned by the private sector ; and

- A financially viable distribution system let out to the private sector under a concession.

In all these cases the existing assets will remain in public hands and in the case of the existing generation and distribution, the running of the business will be privatised.

A new Act, the Electricity Act, 1999 gave a legal backing to those reforms and opened up the electricity industry to the private sector, removing the monopoly by the state utility, Uganda Electricity Board (UEB).

Independent Power Producers (IPPs) have started entering the sector. Already one IPP, AES Nile Power has been licensed to develop the 250 MW Bujagali Project which is located some 8 Km downstream of the existing Nalubale (formerly Owen Falls) power station. Work on this project is expected to be completed by the end of 2005 or early 2006. Another developer has shown interest to develop the 150 MW Karuma Project and has already conducted feasibility studies.

Other developers have shown interest in developing small hydropower sites. A study was conducted recently, to evaluate small hydropower sites in the 0.5 - 50 MW range. Nine sites, namely; Nyamabuye, Nengo Bridge, Bugoye, Kakaka, Sogahi, Rwizi, Buseruka, Siti and Sipi were considered under this study.

Two small hydro power plants, the 5.1 MW Paidha Project and the 1.5 MW Olewa Project are due for development to supply the fast growing West Nile region. These two projects will be developed by the private sector under the Government rural electrification programme called 'Energy for Rural Transformation' ERT. This has been considered for development as a Clean Development Mechanism project of the Kyoto Protocol, whereby an investor would purchase certified emission reductions, CERs, certificates from this project.

2 Renewable Energy and Energy Efficiency Developments

Over the years a lot of efforts have been made to influence the happenings in the energy sector. Since the 1980's millions of dollars have been spent by donors and multilateral agencies on studies and pilot programs/initiatives to promote the alternative energy dissemination and improve end-use efficiencies e.g. Improved charcoal stoves programs. Nevertheless, the bulk of funding has gone into strengthening grid related electricity and the petroleum sub sector.

The power sector currently requires new investment from the technical, managerial and financial perspective. The legal and regulatory frameworks have been put in place that enable private sector participation. Options for this include decentralized power systems, independent power projects and a series of management contracts with the larger utilities.

The Government in collaboration with the World Bank as an off-shoot of the Africa Rural and Renewable Energy Initiatives (AFRREI) has initiated the Energy for Rural Transformation (ERT) program – see Appendix II.

It was recognized that for the ERT approach to succeed it was very important that the Ministry of Local Government and the Local Authorities Association works hand in hand with the Ministry of Energy and Mineral development to co-ordinate the planning of the program.

AFRREI was launched in October 1998 with the objective of expanding access and promoting synergistic activities to facilitate rural transformation of communities, businesses and rural households, using renewable energy appropriate. In other words the key driver is not access alone but more broadly rural transformation that focuses on non-farm income generation as well as community needs.

ERT's strategy is to facilitate private sector led, commercially orientated rural electrification, utilizing:

- A long term view, starting small, looking to grow big, with built in flexibility
- A demand driven approach that encourages and builds on local institutions, with a the government as a market enabler, not service provider
- Neutrality with respect to supply options, and delivery mechanisms and business models, but promoting renewable energy where appropriate
- A balance between affordability and sustainability by introducing low cost networks designs while providing "smart subsidies" to buy down a portion of the capital cost;
- Working partnerships – bilateral donor agencies, NGO's private sector, World Bank – as envisaged under the "comprehensive development framework" to maximize development impacts.

The program has been phased so as to enable rapid scaling up of the program. The first phase which was launched in June 2002 has the objective of roll-out of a completely functional environment for commercially orientated service delivery and small scale renewable energy power generation by the private sector. The key focus is on mitigating barriers such as regulation, finance and technical assistance.

The first phase would start small in terms of investment, treating each sub-project on a case-by-case basis, to test (and refine, as necessary) and prove the readiness of business models and associated support systems for commercially oriented rural electrification and for meeting essential community needs, for scaled-up delivery in subsequent phases. In parallel, the first phase would begin awareness campaigns, especially at the local (LC3) level about the program's relevance to the communities and how they can participate.

This first phase of the APL provides the opportunity of conducting a few and highly selective pilots with high likelihood of exploiting cross-sectoral synergies,

with a view to getting them ready for increasing broader and deeper penetration in subsequent phases.

The program has scope for accelerating the dissemination of Solar PV, development of micro-hydro for off grid homes, mini grid development and a series of projects in improving biomass end-efficiency.

2.2 Solar PV Market

The private sector is the major actor in the development of solar resources in Uganda. Several local companies organized themselves into the Uganda Renewable Energy Association (UREA) and are actively participating in the solar industry.

To-date, about ten thousand solar home systems have been installed in the country, through the private sector, donor support (especially to health units and institutions) and by organizations which require isolated stations.

Factors affecting the popularizations of solar energy include the following:

- The high upfront costs out of reach for most consumers especially in rural areas;
- The lack of technical capacity to design, install and maintain the systems;
- The lack of local capacity to manufacture some of the solar systems' components locally;
- Limited awareness about the existence of the renewable energy technologies;
- Poor marketing skills on the part of the vendors; and

Inability of solar vendors to exploit the benefits of economies of scale; each vendor imports in limited quantities.

A series of programs have attempted to address the solar market detailed below. With the support of UNDP/ GEF the Government of Uganda is implementing a pilot solar project called the Uganda Photovoltaic Pilot Project for Rural Electrification, UPPPRE, to address the problems identified above. This is the largest government assisted solar programme and has made efforts to involve financial institutions in providing loans to both consumers and vendors of solar PV systems. There has also been an extensive awareness campaign, which has led to an increase in sales of systems by the private sector. Several technicians including members of UREA have been trained in the design and installation of systems

Most of the other and older methods of PV system development have been adhoc and at a micro scale.

The Uganda PV market stands thus:

a) Optimistic scenario: 12V DC product line having a total market of 9500kWp and a cash value of $191,200,000 however the annual market standing at $7,648,000 i.e. 4% of the total potential market.

b) Base Scenario: 12V DC product line having a total market of 5700kWp and a cash value of $114,720,000 however the annual market standing at $2,294,400 i.e. @ 2% of the total potential market.

Under the ERT a solar component has been embraced that is aimed at addressing rural electrification through the dissemination of solar home systems (SHS).
The component under the World Bank's ERT Programme aims at addressing key barriers to the development of the PV sector i.e. financial, legal and regulatory, and capacity development.

The program has a subsidy scheme as follows:-

- $2.5/Wp for systems up to 30Wp
- For larger systems an additional $1.50/Wp on the marginal Wp up to a maximum of 50Wp

Therefore:
- A 20 Wp system would be eligible for a $50 grant (20Wp*2.50)
- A 40 Wp system would be eligible for a $90 grant (30Wp*2.50 plus 10*1.50)

2.3 Micro Hydro

Given the past legal and regulatory regimes Micro hydro (MH) power development has largely been the preserve of Church based programs & the mines. The Churches and missionaries groups with support of sister Churches in the developed world have independently developed the few MH plants scattered around the country. These include the Kisiizi Hospital (60 kW), Kagando Hospital (70 kW) and Kuluva Hospital (90 kW). The mines in Western Uganda too have been responsible for the development of at least 2 MH plants i.e. the Kasese Cobalt Company (KCC) and the Kilembe Mines.
Kilembe mines sells its excess power to the grid.

Under the 1st Phase of the ERT a number of MH plants are to piloted. Notable among these is the Kisiizi MH project which seeks to expand the current MH plant from 60 kW to 120 kW. The purpose of the said project is to enable the MH plant to increase its generation capacity and to avail power to its immediate

neighbours. The project shall also enable policy makers assess the actual investment environment for future replication.

The following table shows the installed and potential micro hydro sites in Uganda

SITE	DISTRICT	INSTALLED CAPACITY (MW)	POTENTIAL CAPACITY (MW)	STATUS
Kuluva	Moyo	0.12	-	In operation
Kagando	Kasese	0.06	-	In operation
Kisizi	Rukungiri	0.06	-	In operation
Kitumba	Kabale	-	0.2	Estimate
Mpanga	Kabarole	-	0.4	Estimate
Nyakibale	Rukungiri	-	0.1	Estimate
Leya	Moyo	-	0.12	Estimate
Amua	Moyo	-	0.18	Estimate
Narwodo	Nebbi	-	0.4	Estimate
Esia	Moyo	-	0.24	Estimate
Agoi	Arua	-	0.35	Estimate
Tokwe	Bundibugyo	-	0.2	Estimate
Mgiita	Bundibugyo	-	0.15	Estimate
Miria Adua	Arua	-	0.1	Estimate

2.4 Small Hydro Grid Connected and Potential (500 kW to 5 MW)

The table below indicates the installed capacity and potential for small hydro sites in Uganda.

SITE	DISTRICT	INSTALLED CAPACITY (MW)	POTENTIAL (ESTIMATED) (MW)	STATUS
Maziba	Kabale	1.0	-	In operation
Mobuku 1	Kasese	5.0	-	In operation
Mobuku 3	Kasese	10	-	Operated by Kasese Cobalt Co.
Mobuku 2	Kasese	-	11.1	Pre-feasibility studies complete
Muzizi	Kibale/Kabalore	-	4-10	Estimate
Paidha	Nebbi	-	5.1	Feasibility study completed and ready for development
Rwizi	Mbarara	-	0.5	Pre-investment studies carries out
Kakaka	Kabarole	-	3.0	Estimate
Nsongezi	Mbarara	-	2.0	Estimate
Nyamabuye	Kisoro	-	2.2	Pre-investment studies carried out
Siti	Kapchorwa	-	1.0	Full feasibility studies to commence soon.
Sipi	Kapchorwa	-	5.4	Pre-investment studies carried out.
Anyau/Olewa	Arua	-	1.5	Feasibility study complete
Haisesero	Kabale	-	1.0	Estimate
Mvepi	Arua	-	2.4	Estimate
Ala	Arua	-	1.5	Estimate
Nkussi	Mbarara	-	0.9	Estimate
Mitano	Kabale	-	2.0	Estimate
Kikagati	Mbarara	-	-	Abandoned
Sezibwa	Mukono	-	0.5	Estimate
Soghai	Kabarole	-	2.0	Estimate
Ishasha	Rukungiri	-	4.0	Feasibility studies completed
Buseruka	Hoima	-	15.3	Pre-feasibility studies completed
Nengo Bridge	Rukungiri	-	7.7	Pre-feasibility studies completed

Developers have shown interest in developing the small hydropower sites. A study was conducted recently, to evaluate small hydropower sites in the 0.5 - 50 MW range. Nine sites, namely; Nyamabuye, Nengo Bridge, Bugoye, Kakaka, Sogahi, Rwizi, Buseruka, Siti and Sipi have been identified.

2.5 Efficient Cookstoves

IGAD the latest program In addition to introducing renewable energy technologies, the government also played a key role in promoting “efficient cookstoves” to rural areas.

Over 90% of the rural population still use fuelwood for cooking.
The Government and a number of NGO’s have since the early 1980’s invested millions of dollars in the dissemination of fuel efficient biomass energy stoves, The purpose of these programs has been to:

- Improve household cookstoves efficiency and popularize usage of fuel efficient cookstoves
- Improve efficiency of charcoal production and charcoal stove performance efficiency
- Improve fuel efficiency in lime kilns
- Improve the environment through afforestation and tree protection bye-law

NGOs also worked with the government to train potters around the country. Soon efficient cookstoves shall be available around the country at an affordable price. These stoves are known to have contributed significantly to reducing health effects from indoor pollution as well as deforestation.

2.6 Government Ministries and Agencies Promoting Renewable Energy

A number of government ministries and agencies are stakeholders in the renewable energy sector in Uganda. Some of these work in collaboration with the Department of energy in the MEMD, while others work independently. Nevertheless, the Ministry Of Energy and Mineral Development MEMD is charged with the setting broad sector policies and strategies and supervises and regulates the power and petroleum sectors.

The MEMD is implementing the Sustainable Energy Use in Households AND Industry (SEUHI), a three-year project supported by the Netherlands Government. The objective of this project was to improve efficiency in energy conversion and use in the households and small-scale industry. The project addresses rural and urban household stoves in Kampala, Soroti, Adjumani, Kabale and Tororo; charcoal production in Luwero, Nakasongola and Masindi; lime production in Kasese, Kisoro and Tororo
The Department of Forestry has the primary responsibility for wood production from forest plantations, natural forests and woodlands.

Under the Energy for Rural Transformation program, a rural electrification program being developed by Government, there will be a big solar component, building on the lessons of the pilot project.

The tea and tobacco industry have engaged in activities to enhance production and utilization of fuelwood for their efficient wood-fired steam boilers and curing barns respectively. The company also uses efficient wood burning cook stoves to prepare food for factory workers. For instance, the tobacco company has introduced an energy efficient tobacco-curing barn

2.7 Non-Profit Initiatives to Promote Renewable Energy

2.7.1 NGOs

There are numerous NGO's that engage in the dissemination of modern renewable energy technologies and energy efficiency. However, many of these are biased towards environment protection and embrace the energy activity as a means to achieve their primary activity. Notable among these are indigenous NGO's like the Joint Energy and Environment Project (JEEP) and Integrated Rural Development Initiatives (IRDI) among many others. Currently JEEP' s thrust is in training of, trainers in among other topics; energy conservation and alternative fuels, construction of fuel saving cook stoves, other energy saving household technologies and tree planting. IRDI promotes the use of renewable energy technologies with emphasis on training trainers in mud stove construction and use, use of a hay basket and construction of biogas plants

NGO's have an important role to play especially as relates to Socio intermediation which integrates involving the community in the planning and implementation phases of any development.
Facilitators from NGO's would be instrumental in the following:

1. Mobilizing and informing the community groups of the impending opportunities that could enable them access electricity or other modern forms of energy.
2. Facilitating a process through which communities can freely contribute to the plans or programs aimed at making energy available. These discussions may cover issues related to the strengths, weaknesses, opportunities and threats if any relating to ownership and management of proposed investments that could impact on the successful implementation and sustainability of projects.
3. Feed back to the project promoters views emanating from such consultative processes for consideration during the designing of their investment.

Such an interactive process is essential to avoid conflicts by creating an interface between the project beneficiaries and the promoters. These meetings will discuss the questions raised and attempt to bridge the existing gap between the different groups within the communities which could be brought about by difference in information about any project.

The NGO's can also play a key role in capacity building to be started before the real implementation of any project and if possible should be continuous and targeting different categories of people separately.
The key stakeholder should include representatives from major organisations such as Local Council representatives, religious leaders, civil Society, business community and representatives of institutions.

2.7.2 Research and training

With support from NORAD, Nyabyeya Forestry College established a Biomass Energy Resource and Training Centre, for training forestry technicians and graduate foresters. The Faculty of Technology at Makerere University has established demonstration/training units for different technologies including biogas, improved cook stoves and is planning to install a gasifier.

2.7.3 National Environment Management Authority

The National Environment Management Authority supports CBO's and NGO's involved in environment related activities in Mbarara, Kabale, Kasese, Arua, Tororo, Busia and Mbale Districts. Support is provided at sub-county level.

3 Private Sector Involvement in Electricity Provision

The private sectors role in the provision of electricity was previously constrained by the law that conferred the national utility the monopoly to plan for and to provide electricity in Uganda. The enactment of the "The Electricity Act – 1999" shall go a long way in providing the private sector an opportunity to participate in electricity provision. Nevertheless, the private sector have played a large role in auto generation of electricity using diesel and petrol gensets. Uganda's auto generation capacity in 1997 stood at over 70 MW.

Today there are a number of IPP's interested in investing in the power industry notably:

- Uganda Rural Electrification Company Ltd, a joint venture by IPS {U} ltd, and Rural Maintenance Ltd (RML) of South Africa. Who are vying for a license to generate and distribute power in the West Nile region.
- Mount Elgon Hydropower to supply power in Mbale district.
- Hydromax Ltd have applied for a license to generate and distribute power form Baseruka hydro development project to Hoima and Masindi districts

- Kakira Sugar Works was granted license to expand their generation capacity and to distribute power to the vicinity. The source of power is form a steam cogeneration plant that feeds on sugar bagasse. Kakira's capacity stands at 4.5MW though only 2.5MW is installed.
- The Sugar cooperation of Uganda too is slated to commence power generation from their cogeneration plant. Installed capacity 2MW
- Kinyara Sugar works in Masindi has an installed capacity of 1.5MW. Some of this power could be sold off the the areas surrounding the sugar estate.
- Magale Hospital in 1999 conceived a project to dispose of its excess electricity generated from its 40 kW genset to the surrounding community. This was done without any licensing formalities.
- Kisizi Hospital in the South Western part of Uganda plans to expand its generation capacity and sell off its excess as a means of generation additional revenue for the hospital.
- Rukungiri and Bushenyi District Local Council in collaboration with the Aga Khan fund for Economic Development (AKFED) and the IFC are to invest jointly in the establishment of a site in the Bushenyi district. The mother company is Uganda Rural Electrification Company Ltd

All these developments are rather new and therefore it shall be a few more years before the impact of this can be evaluated.

The other initiatives include the role of the private sector in disseminating solar PV and the distribution of car batteries to meet household entertainment needs.

3.1 Assessment of PPP models

As mentioned before Public Private Partnerships in the provision of power is a relatively new development given that there were many legal barriers inhibiting the same. Nevertheless, some sort of PPP arrangements exist as summarized below.

Direct subsidy to private entrepreneurs – including Solar PV

This takes the form of the Uganda Pilot Photovoltaic Project for Rural Electrification – UPPPRE that started in 1996. Funded by UNDP/GEF the project sought to accelerate the penetration of PV in the Country. Lessons learnt from the project pave way for the newer projects like the World Bank ERT's Solar project which encompasses a large subsidy program. The UPPPRE was a project that is due to terminate. The major beneficiaries have been the solar dealers, households and social centres.

ESCO: Independent Utility Producer/Distributor led electrification

Example Kisiizi Hospital located in the south-west of Uganda. Much of the power generated was used by the hospital to carry out general hospital functions and to power staff houses. Of recent the other social services located within the hospital premises have had access to power for the 60 kW Microhydro plant. Attempts to sell off the plants excess power hit a snag due to frequent overloads and non-payment for power by the consumers. Under the ERT the MH plant is to be expanded to generate a total of 180 – 200 kW. It is anticipated that with a hospitals load of 80 kW an extra 100 – 120 kW shall be available to provide power to some households and essential services the surrounding community.

ESCO: Generator only (IPP) - (public or private ownership)

Kilembe mines in the West of Uganda tapping water from glacial rivers of Mt. Rwenzori developed a 3 MW hydro plant to provide power to the copper mines and to the smelter in Kilembe town. The labor line was connected to electricity. However, after the mining operations wound up in the 1970's the hydro power station generated power to keep water out of the mines. The excess was sold to the national grid.

Distribution systems leased to Private or NGO-type or community-based organisations

Magale Hospital is currently operating a mini grid providing electricity using diesel fuel. The mini grid serves about 43 customers, mainly households, in addition to the hospital itself, the Catholic Mission and the local Convent.

Given that Magale was not among the UEB priority electrification areas the hospital acquired a 40 kW genset for electricity auto generation. However, when the operational cost of the plant got too high and given that there was significant over capacity the management offered to share the costs of generation with the community. Modalities for the cooperation were worked out and a mini grid was established. This arrangement worked well for one year then management problems arose necessitating social skill is the management of power provision. Nevertheless one can easily say that it constituted a very brave attempt at solving a major problem.

4 Conclusions

As the traditional model of government controlled centralized provision of energy have limitations due to economic and environmental reasons, a new paradigm in energy services is emerging. In the meantime the government has played an important role of also introducing alternative forms of energy for rural areas. Private sector and NGOs have taken these initiatives to create new thinking about energy services, which is decentralized and commercially driven.

However, the private sector and NGOs can only service a segment of the population, which can afford services at commercial prices. In Sri Lanka, out of 75% rurally based people, only about 10% could afford these services. Therefore, private/public partnerships are going to be crucial if this segment is to receive energy services.

Given the long-term linkages between energy and economic development, government will especially have to participate with the private sector to complement the new initiatives with policies, financing and other enabling mechanisms.

Appendix I - Public Private Partnership Model Types already tested

Appendix I

PACE Project: Country Report
Public Private Partnership Model Types already tested

Country: Uganda

		1	2	3a	3b	3c	4	5	6	7
	Input	Direct subsidy to private entrepreneurs (including subsidy for PV SHS)	Formation of a private sector company, to own manage the system after its construction by a public body	ESCO: Independent Utility Producer/ Distributer led electrification	ESCO: Energy Management and Services	ESCO: Generator only (IPP) - (public or private ownership)	Distribution systems leased to Private or NGO-type or community-based organisations	Isolated grids leased to the private sector (both generation and distribution)	Constructio n by Private Sector: BOOT, BOT BOO	Concession Model - geographic
Exists? Yes/No	Y/N	Y	N	Y	N	Y	Y	N	N	N
Number of schemes	Number	1	N	1	0	1	1	0	0	0
Total Installed (MW)	Number			0.06		3	0.04			
Years of successful operation	Number	5		30		40	2			
Financially viable	Y/N	Y		Y		Y	N			
Who is served (Govt, inst, priv bus, HH)	G/I/B/HH	G/I/B/HH		I		G/I/B/HH	I/B/HH			
Who is excluded (same catagories)	G/I/B/HH	G/I/B/HH		G/B/HH			G			

	Input	Direct subsidy to private entrepreneurs (including subsidy for PV SHS)	Formation of a private sector company, to own manage the system after its construction by a public body	ESCO: Independent Utility Producer/ Distributer led electrification	ESCO: Energy Management and Services	ESCO: Generator only (IPP) - (public or private ownership)	Distribution systems leased to Private or NGO-type or community-based organisations	Isolated grids leased to the private sector (both generation and distribution)	Constructio n by Private Sector: BOOT, BOT BOO	Concession Model - geographic
Replicable in-country (Y/N)	Y/N	Y		Y		Y	Y			
Primary use of electricity	Describe examples	Lighting		Running hospital		Running a copper mine	Hospital and Mission			
Estimated Population served	Number			3000		5000	3000			
Initiator (organisation/age ncy)	Name of agency	Government - Donors		Missionaries		Government	Missionaries			
Community Buy-in (Y/N)	Y/N	Y		Y		N	Y			

Appendix II - Energy for Rural Transformation (ERT)

The Ministry of Energy and Mineral Development in consultation with the Ministry of Finance, Planning and Economic Development, the Ministry of Local Government and other stakeholders in the private and public sector prepared a Rural Electrification Strategy and Plan covering the period 2001 to 2010 which has been approved by Cabinet.

Under this Plan, a programme known as Energy for Rural Transformation (ERT) is being developed, under this programme, Government together with the private sector and our development partners is planning to undertake a massive rural electrification programme covering all regions of Uganda.

The primary objective of the RE Strategy is to reduce inequalities in access to electricity and the associated opportunities for increased social welfare, education, health and income generating opportunities.

The Government's Rural Electrification (RE) Strategy aims to achieve for the year 2010 a rural electrification rate of 10%, meaning that 480,000 rural consumers, a net increase of 400,000 over the year 2000 figure are to be serviced. It is estimated that 15% of the increase in serviced households will come from higher connections to the existing grid outside the urban triangle, 40% from extension of the interconnected grid, 25% from isolated grids and 20% from photovoltaic solar systems.

Since this programme is yet to start its impacts cannot be assessed at present.

Appendix III – Government Policy Issues Related to Electrification, Energy and Rural electrification strategy

Uganda Energy Policy

The following are key policy priorities of the Ugandan Government

- Integrating existing sub-sectorial policies
- The present draft was prepared in April 2001
- The reason that in the past Uganda's Energy Sector has been driven by annual ministerial policy statements on the budget. Yet the importance of the energy sector in the economy requires that a long-term planning approach for energy development be adopted. In particular, the liberalization of the energy sector, in line with the overall macro-economic policies, require that clear, long-term policy guidelines be in place to encourage project development and harmonise sector activities.
- The main policy goal is to meet the energy needs of the Ugandan population for social and economic development on an environmentally sustainable way.
- To ensure that energy plays a central role in the economic development of the country and in the region. Government will adopt the following strategies:
    - Encourage competition within the energy markets to achieve efficiency.
    - Encourage competition within the energy markets to achieve efficiency
    - Attract investments in energy services provision by providing appropriate incentives.
    - Ensure energy supply security and reliability
    - Promote energy trade within the region.

Government will ensure that environmental considerations are given priority by energy suppliers and users to protect the environment and put in place a monitoring mechanism to evaluate compliance with established environmental protection guidelines.

Power Sector Restructuring and Privatisation

In 1997 the Government of Uganda formulated a comprehensive and detailed Strategic Plan for transforming the Uganda power sector into a financially viable electricity industry, in order to make its full contribution to the economic and social development of Uganda.

This plan was revised into a new Strategic Plan in June 1999.

The New Strategic Plan places particular emphasis on the role of competition in promoting efficiency within the power sector and on private sector participation as being a key driver to enhance the power sector's performance.

The key elements of the reform are:

- Increasing the scope of competition in the provision of new generating capacity and in the running of existing generation assets. New generating capacity to be competitively provided by the private sector through independent power projects (IPPs);

- A separate Transmission Company, which in the medium term will remain in public hands, to be responsible for network maintenance, system operation and dispatch, and bulk purchase and supply of electricity. New transmission capacity will as far as possible be developed, financed, constructed, operated and owned by the private sector ; and

- A financially viable distribution system let out to the private sector under a concession.

In all these cases the existing assets will remain in public hands and in the case of the existing generation and distribution, the running of the business will be privatised.

A new Act, the Electricity Act, 1999 gave a legal backing to those reforms and opened up the electricity industry to the private sector, removing the monopoly by the state utility, Uganda Electricity Board (UEB).